This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of gamut mapping to a printer gamut, comprising:

receiving a narrow gamut, a wide gamut, a printer gamut for printing on a printer and a predetermined mapping between the narrow and the printer gamuts;

identifying overlapping areas in the wide gamut, the narrow gamut and the printer gamut;

determining when the narrow gamut overlaps one or more areas of the wide gamut;

utilizing the narrow gamut values when the determination provides overlapping areas of the narrow gamut and the wide gamut;

selecting a wide gamut interpolation point corresponding to the surface of the printer gamut when narrow gamut areas do not overlap the wide gamut according to the determination;

selecting a narrow gamut interpolation point ~~by~~ that includes mapping the narrow gamut to the printer gamut based upon the predetermined mapping when narrow gamut areas do not overlap the wide gamut according to the determination, mapping the surface of the wide gamut to the surface of the narrow gamut using a clipping operation, determining location of clipped narrow gamut values in printer gamut as mapped through the predetermined narrow to printer gamut mapping, and setting the narrow gamut interpolation points based upon values mapped to the printer gamut; and

interpolating the narrow gamut interpolation point and the wide gamut interpolation point to expand the narrow gamut values into the printer gamut.

2. (original) The method of claim 1 wherein a portion of the wide gamut is wider than the printer gamut and a portion of the printer gamut is wider than the narrow gamut.

3. (original) The method of claim 1 wherein the wide gamut is selected from a set of wide gamuts including:

CIELAB, YCC, Adobe RGB, bgRGB, scRGB, e-sRGB and ROMM.

4. (original) The method of claim 1 wherein the narrow gamut includes an sRGB compatible gamut.

5. (original) The method of claim 1 wherein identifying overlapping areas further includes, mapping the area covered by the narrow gamut, the wide gamut and the printer gamut in a reference color space selected from a set including CIELAB color space and LCH colorspsace.

6. (original) The method of claim 1 wherein selecting the wide gamut interpolation point includes:

mapping the surface of the wide gamut to the surface of the narrow gamut using a clipping operation;

determining location of clipped narrow gamut values in a printer gamut as mapped through the predetermined the narrow to printer gamut mapping;

increasing chroma of the clipped narrow gamut values mapped to the printer gamut until they are on the surface of printer gamut;

and setting the wide gamut interpolation points based upon values on the surface of the printer gamut.

7. (original) The method of claim 6 wherein the clipping operation is selected from a set of clipping operations including:

independently clipping each color channel, preserving a constant hue during clipping and clipping with a gamut intersection toward the gamut centroid.

8. (original) The method of claim 6 wherein the map between the clipped wide-gamut surface values and the printer gamut maintains the hue of the clipped color while increasing chroma to the printer gamut surface.

9. (original) The method of claim 8 wherein the map between the clipped wide-gamut surface values and the printer gamut further modifies the lightness of the

colors proportional to the difference between the lightness of the narrow gamut and the clipped values.

10. (canceled).

11. (currently amended) A printing apparatus for gamut mapping into a printer gamut, comprising:

a processor capable of executing instructions for gamut mapping;

a memory containing instructions when executed on the processor causes the processor to, receive a narrow gamut, a wide gamut, a printer gamut for printing on a printer and a predetermined mapping between the narrow and printer gamuts, identify overlapping areas in the wide gamut, the narrow gamut and the printer gamut, determine when the narrow gamut overlaps one or more areas of the wide gamut, utilize the narrow gamut values when the determination provides overlapping areas of the narrow gamut and the wide gamut, select a wide gamut interpolation point corresponding to the surface of the printer gamut when narrow gamut areas do not overlap the wide gamut according to the determination, select a narrow gamut interpolation point by mapping the narrow gamut to the printer gamut based upon the predetermined mapping between the narrow and printer gamuts when narrow gamut areas do not overlap the wide gamut according to the determination, by mapping the surface of the wide gamut to the surface of the narrow gamut using a clipping operation, by determining the location of clipped narrow gamut values in printer gamut as mapped through a reference color space and by setting the narrow gamut interpolation points based upon values mapped to in the printer gamut, and interpolate the narrow gamut interpolation point and the wide gamut interpolation point to expand the narrow gamut values into the printer gamut.

12. (original) The apparatus of claim 11 wherein a portion of the wide gamut is wider than the printer gamut and a portion of the printer gamut is wider than the narrow gamut.

13. (original) The apparatus of claim 11 wherein the wide gamut is selected from a set of wide gamuts including:

CIELAB, YCC, Adobe RGB, bgRGB, scRGB, e-sRGB and ROMM.

14. (original) The apparatus of claim 11 wherein the narrow gamut includes an sRGB compatible gamut.

15. (original) The apparatus of claim 11 wherein the instructions that identify overlapping areas further includes instructions that map the area covered by the narrow gamut, the wide gamut and the printer gamut in a reference color space selected from a set including CIELAB color space and LCH colorspsace.

16. (original) The apparatus of claim 11 wherein instructions that select the wide gamut interpolation point further include instructions that:

map the surface of the wide gamut to the surface of the narrow gamut using a clipping operation, determine the location of clipped narrow gamut values in a printer gamut as mapped through the predetermined narrow to printer gamut mapping, increase the chroma of the clipped narrow gamut values mapped to the printer gamut until they are on the surface of printer gamut and set the wide gamut interpolation points based upon values on the surface of the printer gamut.

17. (original) The apparatus of claim 16 wherein the instructions for clipping are selected from a set of clipping instructions including:

instructions that independently clip each color channel, instructions that preserve a constant hue during clipping and instructions that clip with a gamut intersection toward the gamut centroid.

18. (original) The apparatus of claim 16 wherein the instructions that map between the narrow gamut and the printer gamut maintain the hue of the clipped color while increasing chroma to the printer gamut surface.

19. (original) The apparatus of claim 18 wherein the instructions that map between the narrow gamut and the printer gamut further modify the lightness of the colors proportional to the difference between the lightness of the narrow gamut and the clipped values.

20. (canceled).

21. (currently amended) An apparatus for gamut mapping to a printer gamut, comprising:

means for receiving a narrow gamut, a wide gamut, a printer gamut for printing on a printer and a predetermined mapping between the narrow and printer gamuts;

means for identifying overlapping areas in the wide gamut, the narrow gamut and the printer gamut;

means for determining when the narrow gamut overlaps one or more areas of the wide gamut;

means for utilizing the narrow gamut values when the determination provides overlapping areas of the narrow gamut and the wide gamut;

means for selecting a wide gamut interpolation point corresponding to the surface of the printer gamut when narrow gamut areas do not overlap the wide gamut according to the determination;

means for selecting a narrow gamut interpolation point ~~by~~ <u>that includes</u> mapping the narrow gamut to the printer gamut based upon the predetermined mapping between the narrow and printer gamuts when narrow gamut areas do not overlap the wide gamut according to the determination<u>, mapping the surface of the wide gamut to the surface of the narrow gamut using a clipping operation, determining the location of clipped narrow gamut values in printer gamut as mapped through a reference color space and setting the narrow gamut interpolation points based upon values mapped to in the printer gamut</u>; and

means for interpolating the narrow gamut interpolation point and the wide gamut interpolation point to expand the narrow gamut values into the printer gamut.

22. (currently amended) [[A]] A computer –readable medium storing a computer program for gamut mapping to a printer gamut, comprising instructions operable to cause a programmable processor to:

receive a narrow gamut, a wide gamut, a printer gamut for printing on a printer and a predetermined mapping between the narrow and printer gamuts;

identify overlapping areas in the wide gamut, the narrow gamut and the printer gamut;

determine when the narrow gamut overlaps one or more areas of the wide gamut;

utilize the narrow gamut values when the determination provides overlapping areas of the narrow gamut and the wide gamut;

select a wide gamut interpolation point corresponding to the surface of the printer gamut when narrow gamut areas do not overlap the wide gamut according to the determination;

select a narrow gamut interpolation point by that includes mapping the narrow gamut to the printer gamut based upon the predetermined mapping between the narrow and printer gamuts when narrow gamut areas do not overlap the wide gamut according to the determination, mapping the surface of the wide gamut to the surface of the narrow gamut using a clipping operation, determining the location of clipped narrow gamut values in printer gamut as mapped through a reference color space and setting the narrow gamut interpolation points based upon values mapped to in the printer gamut; and

interpolate the narrow gamut interpolation point and the wide gamut interpolation.